

# Xiao Li

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## Education

**Ph.D.** in Astrophysics **Aug 2019 - June 2024**

Advisor: Prof. **Cheng, Li** (Tsinghua) & Prof. **Houjun, Mo** (UMass)

Thesis: *Statistical study of the atomic hydrogen gas in galaxies and dark matter halos*

Department of Astronomy, Tsinghua University

**B.Sc.** in Astrophysics **Sep 2015 - June 2019**

Advisor: Prof. **Houjun, Mo** (UMass)

Thesis: *HI 21cm signal extraction from galaxy groups*

Department of Astronomy, Beijing Normal University

## Telescope Times

1. **As PI** Deep HI targeted survey of quenched massive galaxies, *Five-hundred-meter Aperture Spherical radio Telescope (FAST)*, PT2023\_0025 (2023), allocated **23h**. Co-I: Cheng Li, Jing Wang. Observation completed. In preparation for publication.
2. **As PI** Ultra deep HI targeted survey of red galaxies, *Five-hundred-meter Aperture Spherical radio Telescope (FAST)*, PT2024\_0250 (2024), allocated **12h**. Co-I: Cheng Li, Jing Wang, Cheng Cheng. Observation completed. In preparation for publication.
3. **As PI** *Large FoV IFS on UGC1382 as a case study of quenched but HI-rich galaxies*, Canada-France-Hawaii-Telescope (CFHT) (2024), allocated **5h 36m**. Co-I: Cheng Li, Tao Jing, Dandan Xu. Observation completed in Oct 2024, data reduction in progress.
4. **As PI** *HI imaging survey of quenched but HI-rich galaxies*, VLA/25A-163, allocated **38h**. Co-I: Cheng Li, Cheng Cheng, Jing Wang. Observation to be scheduled.

## Skills

- **Programming:** proficient in Python, Linux Shell, and Git. Have basic knowledge and experience of C/C++, IDL, SQL, and HTML.
- **Language:** Chinese (native), English (excellent written and verbal communication skills).

## Awards

1. **National Scholarship**, Tsinghua University, 2023  
*The top prize for graduate students in Tsinghua. The only awardee from Department of Astronomy in 2023.*
2. **ACAMAR 9 prize for Best Chinese Poster**, ACAMAR 9 Workshop, Perth, Australia, July 31 - Aug 2, 2023.
3. **Comprehensive Outstanding Scholarship**, Tsinghua University, 2021

4. **AMD Scholarship** for graduate students at Department of Astronomy, Tsinghua University, 2019
5. **Outstanding Graduate Award**, Beijing Normal University, 2019
6. **Comprehensive Outstanding Scholarship for Undergraduates, 1st class**, Beijing Normal University, 2018
7. **Comprehensive Outstanding Scholarship for Undergraduates, 1st class**, Beijing Normal University, 2016

## Talks

Title: **The effect of feedback processes on atomic hydrogen gas in IllustrisTNG and EAGLE** (contributed)

Conference: The 2nd AGN Feedback Workshop

**13 - 16 Dec 2024**

Shanghai, China

Title: **On the origin of red but HI-rich galaxies in the local universe** (contributed)

Conference: Resolving Galaxy Ecosystems Across All Scales

**10 - 16 Dec 2023**

Hong Kong, China

Title: **On the existence, rareness, and uniqueness of quenched but HI-rich massive galaxies in the local universe** (contributed)

Conference: Key Problems in Galaxy Formation

**14 - 16 Nov 2023**

Beijing, China

Title: **On the origin of red but HI-rich galaxies in the local universe** (contributed)

Conference: The 2nd Shanghai Assembly on Cosmology and Structure Formation

**30 Oct - 3 Nov 2023**

Shanghai, China

Title: **Conditional HI mass function and the HI-to-halo mass relation in the local universe** (contributed)

Conference: ACAMAR 9 Gas in Galaxies Workshop

**25 - 28 July 2023**

Perth, Australia

Title: **Conditional HI mass function and the HI-to-halo mass relation in the local universe** (contributed)

Conference: Collaboration Workshop on Cosmology and Galaxy Formation

**19 - 23 June 2023**

Shanghai, China

Title: **Quenched but HI-rich galaxies in the local universe** (contributed)

Conference: The 25th Guo Shoujing Academic Workshop &

The 2023 Frontier Workshop on Galaxies and Cosmology

**19 - 22 May 2023**

Huangshan, China

Title: **Estimating the neutral gas content of dark matter halos in the local universe** (contributed)

**31 March - 2 April 2022**

Conference: Hot Gas in the Universe: the 2nd HUBS Workshop (remote)

Title: **The neutral gas content of dark matter halos in the local universe** (contributed)

Conference: The 23th Guo Shoujing Academic Workshop &

The 2021 Frontier Workshop on Galaxies and Cosmology

**14 - 17 May 2021**

Hangzhou, China

## Posters

Title: **Quenched but HI-rich galaxies in the local universe** (best Chinese poster)

Conference: ACAMAR 9 Workshop

31 July - 2 Aug 2023

Perth, Australia

## Service & Outreach

- Science popularization talk organized by the Astronomy Club of Tsinghua University,  
Title: Atomic hydrogen gas in the universe. **Invited speaker** **June 2024**
- Symposium on the coevolution of galactic eco-systems and their large-scale environments,  
**Local Organizing Committee member** **April 2024**
- Galaxies and Cosmology Seminar at Tsinghua University, **organizer** **Spring 2023**
- Astronomy Popular Science Cultural Month at Beijing Normal University, **organizer** **Spring 2018**
- Sidewalk astronomy at Beijing Normal University, **organizer, telescope operator** **2015-2017**
- Volunteer guide at the Beijing Planetarium **Summer 2016**

## Other Activities

- Summer Research at National Astronomical Observatory of China, Beijing, China **Summer 2018**  
Advisor: Prof. Qi, Guo Title: *Study of red spiral galaxies*
- Undergraduate Student Research Training Program, Beijing, China **2017-2018**  
Advisor: Prof. Bin, Hu Title: *Gravitational lensing of cosmic microwave background*
- Visiting research at University of Western Australia, Perth, Australia **Summer 2017**

## Publications

1. **Li, X.**, Li, C., Mo, H. J., Wang, J., Xiao, T., *Conditional HI Mass Functions and the HI-to-halo Mass Relation in the Local Universe*. 2022, ApJ, 941, 48
2. **Li, X.**, Li, C., Mo, H. J., Hu, J. H., Wang, J., Xiao, T., *On the Existence, Rareness and Uniqueness of Quenched HI-rich Galaxies in the Local Universe*. 2024, ApJ, 963, 86
3. **Li, X.**, Li, C., Mo, H. J., *What drives the HI content of central galaxies - A comparison between hydrodynamic simulations and observations using Random Forest*. Submitted to ApJ. arxiv: 2411.07977

## Reference

1. **Cheng Li**, Department of Astronomy, Tsinghua University  
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2. **Houjun Mo**, Department of Astronomy, University of Massachusetts, Amherst  
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3. **Jing Wang**, The Kavli Institute for Astronomy and Astrophysics, Peking University  
jwang\_astro@pku.edu.cn